

CLAIMS

1. A heat exchanger which comprises heat exchange tubes and fins each brazed to the heat exchange tube and wherein assuming that each of the heat exchange tubes has a potential A at a surface layer portion of an outer periphery thereof and a potential B at a portion thereof other than the surface layer portion, that each of the fins has a potential C, and that a fillet formed at the brazed portion between the heat exchange tube and the fin has a potential D, these potentials have the relationship of $A \leq C \leq D < B$.

2. A heat exchanger according to claim 1 wherein the potential A of the surface layer portion of the outer periphery of the heat exchange tube: -850 to -800 mV, the potential B of the heat exchange tube at the portion thereof other than the surface layer portion: -710 to -670 mV, the potential C of the fin: -850 to -800 mV, and the potential D of the fillet formed at the brazed portion between the heat exchange tube and the fin: -850 to -800 mV.

3. A heat exchanger according to claim 1 wherein the surface layer portion of the outer periphery of the heat exchange tube is made from an Al alloy containing 0.3 to 0.6 mass % of Cu, 0.1 to 0.4 mass % of Mn and 1.0 to 7.0 mass % of Zn, and the balance Al and inevitable impurities, the portion of the heat exchange tube other than the surface layer portion thereof is made from an Al alloy containing 0.3 to 0.6 mass % of Cu and 0.1 to 0.4 mass % of Mn, and the balance Al and inevitable impurities, the fin is made from an Al alloy containing 0.9 to 2.8 mass % of Zn, 1.0 to 1.5 mass % of Mn and up to 0.15

mass % of Cu, and the balance Al and inevitable impurities, and the fillet formed at the brazed portion between the heat exchange tube and the fin is made from an Al alloy containing 0.1 to 0.4 mass % of Cu, 0.05 to 0.3 mass % of Mn and up to
5 5 mass % of Zn, and the balance Al and inevitable impurities.

4. A heat exchanger according to claim 3 wherein the surface layer portion of the outer periphery of the heat exchange tube is made from an Al alloy containing 0.3 to 0.5 mass % of Cu, 0.1 to 0.3 mass % of Mn and 2.0 to 3.0 mass % of Zn, and the
10 balance Al and inevitable impurities.

5. A heat exchanger according to claim 3 wherein the portion of the heat exchange tube other than the surface layer portion thereof is made from an Al alloy containing 0.3 to 0.5 mass % of Cu and 0.1 to 0.3 mass % of Mn, and the balance
15 Al and inevitable impurities.

6. A heat exchanger according to claim 3 wherein the fin is made from an Al alloy containing 2.0 to 2.5 mass % of Zn, 1.1 to 1.3 mass % of Mn and up to 0.1 mass % of Cu, and the balance Al and inevitable impurities.

20 7. A heat exchanger according to claim 3 wherein the fillet formed at the brazed portion between the heat exchange tube and the fin is made from an Al alloy containing 0.2 to 0.3 mass % of Cu, 0.1 to 0.2 mass % of Mn and up to 3 mass % of Zn, and the balance Al and inevitable impurities.

25 8. A heat exchanger tube member for use in producing a heat exchanger comprising heat exchange tubes and fins each brazed to the heat exchange tube, the tube member comprising a tube member main body made from an Al alloy containing 0.3

to 0.6 mass % of Cu and 0.1 to 0.4 mass % of Mn, and the balance Al and inevitable impurities, and 2 to 8 g/m² of a Zn spray layer formed over the entire outer peripheral surface of the tube member main body.

5 9. A heat exchanger tube member according to claim 8 wherein the tube member main body is made from an Al alloy containing 0.3 to 0.5 mass % of Cu and 0.1 to 0.3 mass % of Mn, and the balance Al and inevitable impurities.

10 10. A heat exchanger tube member according to claim 8 wherein the Zn spray layer is formed in an amount of 2 to 6 g/m².

15 11. A heat exchanger fin member for use in producing a heat exchanger comprising heat exchange tubes and fins each brazed to the heat exchange tube, the fin member comprising a core made from an Al alloy containing 0.9 to 2.8 mass % of Zn and 1.0 to 1.5 mass % of Mn, and the balance Al and inevitable impurities, and a cladding covering at least one surface of the core and made from an Al alloy brazing filler containing 0.1 to 0.4 mass % of Cu and 0.1 to 0.3 mass % of Mn, and the balance Al and inevitable impurities.

20 12. A heat exchanger fin member according to claim 11 wherein the core is made from an Al alloy containing 2.3 to 2.7 mass % of Zn and 1.1 to 1.3 mass % of Mn, and the balance Al and inevitable impurities.

25 13. A heat exchanger fin member according to claim 11 wherein the cladding is made from an Al alloy brazing filler containing 0.1 to 0.3 mass % of Cu and 0.1 to 0.3 mass % of Mn, and the balance Al and inevitable impurities.

14. A heat exchanger fin member according to claim 11 wherein the cladding is provided on one surface of the core in a cladding ratio of 8 to 12%.

15. A heat exchanger fin member according to claim 11
5 wherein the cladding is provided on one surface of the core in a cladding ratio of 9 to 11%.

16. A process for fabricating a heat exchanger characterized in that the tube member according to any one of claims 8 to 10 and the fin member according to any one of claims 11 to
10 15 are brazed.

17. A vehicle having an air conditioner comprising a compressor, a condenser and an evaporator and adapted for use with a chlorofluorocarbon refrigerant, the condenser comprising a heat exchanger according to any one of claims
15 1 to 7.

18. A vehicle having an air conditioner comprising a compressor, a condenser and an evaporator and adapted for use with a chlorofluorocarbon refrigerant, the evaporator comprising a heat exchanger according to any one of claims
20 1 to 7.